

## RECORDS OF STONEFLIES (PLECOPTERA) IN ALABAMA<sup>1</sup>

Bill P. Stark<sup>2</sup>, Steven C. Harris<sup>3</sup>

**ABSTRACT:** Alabama distributional records are given by county for 42 Plecoptera species collected over a 5 year period primarily in light trap samples. An updated checklist of 71 species is given for the state; sixteen of these are new state species records.

Data on the Alabama stonefly fauna have accumulated slowly since appearance of the first records in Berner (1948). James (1972) found 52 species in the state including several new names never published; most of the known records are from various systematic papers (Ricker & Ross, 1968; Ross & Ricker, 1971; James, 1974, 1976; Stark & Gauvin, 1976; Stark & Baumann, 1978, Stark & Szczytko, 1976, 1981; Surdick, 1981). From 1981-1985, one of us (SCH) collected extensively in the state primarily with UV light traps, and several new records were obtained; a few records were also obtained from the Auburn University Museum. Since a comprehensive survey is not yet possible, we are providing the following records to update the current knowledge of Alabama Plecoptera.

### Species Collected

***Alloperla atlantica*** Baumann: Cleburne, Fayette, Franklin, Randolph, and Tuscaloosa Cos. Nine males and 9 females were collected between 26 April and 29 May. The *A. imbecilla* record in James (1972) is probably applicable to this species.

***A. furcula*** Surdick: Baldwin, Escambia, and Monroe Cos. One male and 13 females were collected between 11 May and 24 June. The epiproct of the single male specimen is shorter and wider than in South Carolina specimens.

***A. hamata*** Surdick: Lawrence Co. A single male was collected on 28 May. Surdick (1981) recorded this species from Jackson County.

***A. ideii*** (Ricker): Fayette, Jefferson, Lauderdale, Marion, Randolph, Shelby, Tallapoosa, and Walker Cos. Numerous specimens were collected between 19 May and 25 June.

<sup>1</sup>Received January 22, 1986. Accepted March 20, 1986.

<sup>2</sup>Dept. of Biology, Mississippi College, Clinton, MS 39058

<sup>3</sup>Aquatic Biology Program, Dept. of Biology, University of Alabama, Tuscaloosa, AL 35486

*A. usa* Ricker: Calhoun Co. Three males and 1 female were collected on 20 June.

*Haploperla brevis* (Banks): Choctaw Co. Two males were collected on 16 May. James (1972) included records from Calhoun, Lauderdale, and Tallapoosa Counties.

*Sweltsa mediana* (Banks): Calhoun Co. A single female was collected on 20 June. James (1972) gave a record from Lawrence County.

*Tallaperla cornelia* (Needham & Smith): Tuscaloosa Co. Five males were collected between 7 May and 16 May.

*T. laurie* (Ricker): Cleburne Co. Four males were collected on 21 May.

*T. maria* (Needham & Smith): Cleburne Co. Three males were collected on 21 May.

*Acroneuria abnormis* (Newman): Baldwin, Calhoun, Cherokee, Choctaw, Clay, Cleburne, Covington, DeKalb, Escambia, Fayette, Franklin, Marion, Shelby, and Tuscaloosa Cos. Numerous specimens were taken between 7 May and 26 June. James (1972) gives additional records from Lee, Talladega, and Tallapoosa Counties and Stark & Gaufin (1976) gave a record from Shelby County.

*A. arenosa* (Pictet): Baldwin, Choctaw, Covington, Jefferson, Lamar, Mobile, Monroe, and Tuscaloosa Cos. Ten males and 25 females were collected between 16 May and 24 June. Stark & Gaufin (1976) recorded the species from Jefferson County.

*A. filicis* Frison: Fayette, Lauderdale, Marion, Shelby, Tuscaloosa, and Walker Cos. Numerous specimens were collected between 18 May and 24 June. Stark & Gaufin (1976) recorded the species from Shelby County.

*A. mela* Frison: Geneva and Perry Cos. Five female specimens were taken on 5 June. James (1972) reported the species from Escambia and Monroe Counties.

*A. perlexa* Frison: Calhoun Co. Two males were taken on 20 June. Stark & Gaufin (1976) also recorded the species from Calhoun County.

*Beloneuria jamesae* Stark & Szczytko: Cleburne Co. Twelve nymphs were collected by W.D. Shepard on 29 May, near the type locality (Stark & Szczytko, 1976). James (1972) reported this species as *A. georgiana* Banks from Clay Co.

*Eccoptura xanthenes* (Newman): Calhoun, Choctaw, Clay, Cleburne, Franklin, Lauderdale, Monroe, Talladega, Tuscaloosa, and Winston Cos. Twelve males and 23 females were collected between 16 May and 26 June. James (1972) recorded the species from Calhoun, Randolph, and Shelby Counties.

*Hansonoperla appalachia* Nelson: Cleburne Co. A single male of this rare species was taken on 21 May 1984.

***Perlesta placida*** (Hagen): Baldwin, Calhoun, Choctaw, Covington, Fayette, Geneva, Greene, Jefferson, Lamar, Lauderdale, Marion, Mobile, Tuscaloosa, Walker, and Washington Cos. Numerous specimens were collected between 13 May and 23 August. James (1972) recorded this species in 16 additional counties. This complex is currently being studied by one of us (BPS) and it seems likely that more than a single species is present in the state.

***Perlinella drymo*** (Newman): Covington, Mobile, and Tuscaloosa Cos. Eight males and 8 females were taken between 31 March and 12 June. James (1972) recorded the species from Cleburne County.

***P. ephyre*** (Newman): Lauderdale and Mobile Cos. Six males and 33 females were taken between 31 March and 18 June. James (1972) recorded the species from Escambia County as *Atoperla ephyre*.

***P. fumipennis*** (Walsh): Baldwin, Covington, Escambia, Marion, Mobile, Tuscaloosa, and Washington Cos. Three males and 21 females were taken between 3 May and 28 June.

***Neoperla carlsoni*** Stark & Baumann: Covington, Fayette, Mobile, Tuscaloosa, and Washington Cos. Fifteen males and 60 females were taken between 11 June and 23 August.

***N. clymene*** (Newman): Baldwin, Choctaw, Covington, Escambia, Geneva, Houston, Jefferson, Mobile, Monroe, Perry, and Tuscaloosa Cos. Numerous specimens were taken between 5 June and 25 August. James (1972) gave additional records from Cleburne and Lee Counties.

***N. freytagi*** Stark & Baumann: Marion and Tuscaloosa Cos. Two males and 2 females were taken between 24 June and 20 July.

***N. stewarti*** Stark & Baumann: Choctaw, Monroe, and Walker Cos. Eight males and 18 females were taken between 15 May and 21 June.

***Agnetina annulipes*** (Hagen): Bibb, Covington, and Tuscaloosa Cos. Eleven males and 22 females were collected between 7 May and 12 June. The record of *Phasganophora capitata* (Pictet) from Monroe County in James (1972) also represents this species.

***A. flavescens*** (Walsh): Cleburne, Lauderdale, and Walker Cos. One male and 8 females were collected between 25 May and 18 June.

***Paragnetina fumosa*** (Banks): Baldwin, Choctaw, Cleburne, Monroe, and Tuscaloosa Cos. Four males and 9 females were taken between 11 May and 26 June. James (1972) gave records from Cleburne and Mobile Counties.

***P. kansensis*** (Banks): Escambia, Geneva, and Tuscaloosa Cos. Four males and 4 females were taken between 5 June and 15 June. Stark & Szczytko (1981) recorded this species from Perry County.

***Isoperla bilineata*** (Say): Marion Co. One male and 5 females were collected on 24 and 25 June.

*I. dicala* Frison: Cleburne and Randolph Cos. Four males were collected between 20 May and 25 May.

*Diploperla duplicata* (Banks): Cleburne, Franklin, Tallapoosa, and Tuscaloosa Cos. Twenty eight males were collected between 25 May and 19 June.

*Helopicus bogaloosa* Stark & Ray: Lee Co. Six mature nymphs collected 20 February 1971 were among unidentified Auburn University material.

*H. subvarians* (Banks): Tallapoosa Co. A single female collected 25 March 1972 was reported as *Isogenus crosbyi* (Needham & Claassen) in James (1972).

*Pteronarcys dorsata* (Say): Lamar and Tuscaloosa Cos. One female was taken on 7 May and 8 nymphs were collected on various dates. James (1972) gave an additional record from Monroe County.

*Leuctra alta* James: Tuscaloosa Co. A single male was collected on 26 April. James (1974) previously recorded this species from Calhoun County.

*L. cottaquilla* James: Calhoun Co. Two males were taken on 16 and 17 September. James (1974) also recorded this species from Calhoun County.

*L. rickeri* James: Fayette, Madison, and Tuscaloosa Cos. Ten males and 5 females were collected between 26 April and 3 June. James (1976) recorded this species from Calhoun County.

*L. tenuis* (Pictet): Calhoun Co. A single male was taken on 16 September. James (1972) recorded the species from Calhoun, Cleburne, and DeKalb Counties.

*Nemocapnia carolina* Banks: Escambia Co. A single female was taken on 28 March. James (1972) gave records from Chambers, Coffee, Coosa, Crenshaw, Dale, Lee, and Tallapoosa Counties.

*Amphineumura nigrutta* (Provancher): Blount, Fayette, Jefferson, Madison, and Tuscaloosa Cos. Six males and 16 females were collected between 14 April and 28 May. James (1972) gave additional records from Calhoun, Coffee, Lauderdale, Lee, and Tallapoosa Counties.

### Alabama List

Below is a checklist of 71 stonefly species known to occur in Alabama. A few species (*Isoperla holochlora* and 2 unpublished *Isoperla* names) listed by James (1972) have been omitted until specimens can be re-examined. New state species records are indicated with an asterisk.

**Euholognatha****Capniidae**

- Allocapnia aurora* Ricker  
*A. granulata* (Claassen)  
*A. mystica* Frison  
*A. nivicola* (Fitch)  
*A. polemista* Ross & Ricker  
*A. recta* (Claassen)  
*A. rickeri* Frison  
*A. smithi* Ross & Ricker  
*A. tennesse* Ross & Ricker  
*A. virginiana* Frison  
*Nemocapnia carolina* Banks

**Leuctridae**

- Leuctra alabama* James  
*L. alta* James  
*L. biloba* Claassen  
*L. cottaquilla* James  
*L. crossi* James  
*L. ferruginea* (Walker)  
*L. moha* Ricker  
*L. rickeri* James  
*L. tenuis* (Pictet)

**Nemouridae**

- Amphinemura delosa* (Ricker)  
*A. nigrutta* (Provancher)  
*Prostoia completa* (Walker)  
*Shipsa rotunda* (Claassen)

**Taeniopterygidae**

- Strophopteryx fasciata* (Burmeister)  
*Taeniopteryx burksi* Ricker & Ross  
*T. lita* Frison  
*T. lonicera* Ricker & Ross  
*T. maura* (Pictet)  
*T. meteui* Ricker & Ross

**Systellognatha****Chloroperlidae**

- Alloperla atlantica* Baumann  
*\*A. furcula* Surdick

*A. hamata* Surdick

*\*A. ideii* (Ricker)

*\*A. usa* Ricker

*Haploperla brevis* (Banks)

*Sweltsa mediana* (Banks)

**Peltoperlidae**

*\*Tallaperla cornelia* (Needham & Smith)

*\*T. laurie* (Ricker)

*T. maria* (Needham & Smith)

**Perlidae**

*Acroneuria abnormis* (Newman)

*A. arenosa* (Pictet)

*A. filicis* Frison

*A. mela* Frison

*A. perplexa* Frison

*Attaneuria ruralis* (Hagen)

*Beloneuria jamesae* Stark & Szczytko

*Eccoptura xanthenes* (Newman)

*\*Hansonoperla appalachia* Nelson

*Perlesta placida* (Hagen)

*Perlinella drymo* (Newman)

*P. ephyre* (Newman)

*\*P. fumipennis* (Walsh)

*\*Neoperla carlsoni* Stark & Baumann

*N. clymene* (Newman)

*\*N. freytagi* Stark & Baumann

*\*N. stewarti* Stark & Baumann

*Agnetina annulipes* (Hagen)

*\*A. flavescens* (Walsh)

*Paragnetina fumosa* (Banks)

*P. kansensis* (Banks)

**Perlodidae**

*Clioperla clio* (Newman)

*\*Isoperla bilineata* (Say)

*I. davisii* James

*\*I. dicala* Frison

*\*Diploperla duplicata* (Banks)

*\*Helopicus bogaloosa* Stark & Ray

*\*H. subvarians* (Banks)

*Remenus bilobatus* (Needham & Claassen)

**Pteronarcyidae**

*Pteronarcys biloba* Newman

*P. dorsata* (Say)

**ACKNOWLEDGMENTS**

The Geological Survey of Alabama provided facilities and support for the junior author during the study and is gratefully acknowledged. P. O'Neil, P. Lago, D. Woods and L. Smith assisted in specimen collection and W. Clark provided material from the Auburn University museum. P. Lago and S.W. Szczytko gave helpful pre-publication reviews.



## LITERATURE CITED

- Berner, L. 1948. Records of stoneflies from Florida (Plecoptera). Fla. Entomol. 31: 21-23.
- James, A.M. 1972. The stoneflies (Plecoptera) of Alabama. Unpub. Ph.D. Dissertation, Auburn Univ., 161 p.
- \_\_\_\_\_. 1974. Four new species of stoneflies in North America (Plecoptera). Ann. Entomol. Soc. Amer. 67: 964-966.
- \_\_\_\_\_. 1976. Two new species of *Leuctra*, with notes on the *ferruginea* group (Plecoptera: Leuctridae). Ann. Entomol. Soc. Amer. 69: 882-884.
- Ricker, W.E. and H.H. Ross. 1968. North American species of *Taeniopteryx* (Plecoptera, Insecta). Jour. Fish. Res. Bd. Canada 25: 1423-1439.
- Ross, H.H. and W.E. Ricker. 1971. The classification, evolution and dispersal of the winter stonefly genus *Allocapnia*. Illinois Biol. Monogr. 45: 1-166.
- Stark, B.P. and R.W. Baumann. 1978. New species of Nearctic *Neoperla* (Plecoptera: Perlidae) with notes on the genus. Great Basin Natur. 38: 97-114.
- Stark, B.P. and A.R. Gaufin. 1976. The Nearctic species of *Acroneuria* (Plecoptera: Perlidae). Jour. Kans. Entomol. Soc. 49: 221-253.
- Stark, B.P. and S.W. Szczytko. 1976. The genus *Beloneuria* (Plecoptera: Perlidae). Ann. Entomol. Soc. Amer. 69: 1120-1124.
- \_\_\_\_\_. 1981. Contributions to the systematics of *Paragnetina* (Plecoptera: Perlidae). Jour. Kans. Entomol. Soc. 54: 625-648.
- Surdick, R.F. 1981. New Nearctic Chloroperlidae (Plecoptera). Great Basin Natur. 41: 349-359.

## BOOKS RECEIVED AND BRIEFLY NOTED

NEARCTIC GENERA OF CHLOROPERLINAЕ (PLECOPTERA: CHLOROPERLIDAE). 1985. R.F. Surdick. Ill. Biol. Monograph 54, Univ. Ill. Press. 146 pp. \$14.95 pbk.

The ten Nearctic genera of this subfamily are examined and redescribed, along with an original description of a new genus, *Plumiperla*. A thoroughly scholarly contribution to entomological science.

TAXONOMY, PHYLOGENY, & ZOOGEOGRAPHY OF BEETLES & ANTS. 1985. G.E. Ball, ed. Dr. W. Junk Pub. 514 pp. \$105.00.

Essays, addresses, and lectures on Coleoptera (mainly), Formicidae (Hymenoptera), and taxonomy in a volume dedicated to the memory of P.J. Darlington, Jr., about whom there are also five contributed papers.

CALIFORNIA SAND WASPS OF SUBTRIBE STICTIELLINA. 1985. R.M. Bohart, J.E. Gillaspay. Univ. Calif. Press. 89 pp. \$19.00 pbk.

A scholarly & scientific contribution to the taxonomy and systematics of this subtribe.

THE ENCYCLOPEDIA OF INSECTS. 1986. C. O'Toole, ed. Facts on File Pub. 143 - XVI pp. \$24.95.

A well illustrated, introductory, general reference on insects and other arthropods, and on the biology of insect life. Originally published in England.